What is claimed is:

1. A method of multiplexing information from a plurality of physical channels, comprising:

channel multiplexing information on the plurality of physical channels generate a code-multiplexed signal, the multiplexing including subjecting the information on the physical channels to a channelization operation, wherein information from at least one of the physical channels are serial-to-parallel converted and mapped to one or both of a first branch and a second branch for the channelization operation.

2. The method of claim 1, wherein the information includes control information and data for uplink transmission.

3. The method of claim 1, wherein

subjecting the information on the physical channels to a channelization operation includes generating one of real-valued (I) spread signals on the first branch and imaginary-valued (Q) spread signals on the second branch.

4. The method of claim 3, wherein subjecting the information on the physical channels to a channelization operation includes independently multiplying data symbols on the first branch and second branch with orthogonal variable spreading factor (OVSF) codes to generate the real-valued (I) spread signals on the first branch and the imaginary-valued (Q) spread signals on the second branch.

5. The method of claim 3, further comprising:

weighting the real-valued (I) spread signals and the imaginary-valued (Q) spread signals by given gain factors to generate weighted spread signals on the first and second branches.

6. The method of claim 5, further comprising:

summing the weighted spread signals on the first and second branches to generate a complex-valued signal.

7. The method of claim 6, wherein the weighted spread signals on the second branch are weighted imaginary-valued (Q) spread signals, the method further comprising:

applying a phase rotation to the weighted imaginary-valued (Q) spread signals on the second branch.

8. The method of claim 6, further comprising:

applying a scrambling code to the complex-valued signal to generate the code-multiplexed signal.

9. The method of claim 8, wherein the applying includes scrambling the complex-valued signal with a complex-valued scrambling code so that a first scrambling chip of the complex-valued scrambling code corresponds to a beginning of a radio frame containing the complex-valued signal.

10. The method of claim 1, wherein the information that is serial-to-parallel converted and mapped to one of the first branch and second branch for channelization are data symbols from a dedicated physical data channel.

11. The method of claim 1, wherein

the plurality of physical channels includes a first control channel configured to support high speed downlink packet access (HSPDA) services, a second control channel configured to support enhanced uplink (EU) services, and a data channel configured to support enhanced uplink (EU) services, and

the first and second control channels are mapped to the same branch if the data channel configured to support enhanced uplink (EU) services is one of the channels to be subject to multiplexing.

12. A method of multiplexing information on a plurality of physical channels for uplink transmission, the plurality of physical channels including at least one data channel, comprising:

subjecting information on each of the physical channels to a channelization operation to generate one of real-valued (I) spread signals on an I branch and imaginary-valued (Q) spread signals on a Q branch, wherein data symbols from the data channel are serial-to-parallel converted and mapped to one of the I branch and Q-branch for channelization;

summing the spread signals on the I and Q branches to generate a complex-valued signal; and

applying a scrambling code to the complex-valued signal to generate a code-multiplexed signal for uplink transmission.

13. The method of claim 12, wherein the information includes control information and data for uplink transmission.

14. The method of claim 12, wherein

subjecting the information on the physical channels to a channelization operation includes generating one of real-valued (I) spread signals on the I branch and imaginary-valued (Q) spread signals on the Q branch.

15. The method of claim 14, wherein subjecting the information on the physical channels to a channelization operation includes independently multiplying data symbols on the I branch and Q branch with orthogonal variable spreading factor (OVSF) codes to generate the real-valued (I) spread signals on the I branch and the imaginary-valued (Q) spread signals on the Q branch.

16. The method of claim 14, further comprising:

weighting the real-valued (I) spread signals and the imaginary-valued (Q) spread signals by given gain factors to generate weighted spread signals on the I

and Q branches, wherein the weighting step is performed prior to the summing step.

17. The method of claim 16, wherein the weighted spread signals on the Q branch are weighted imaginary-valued (Q) spread signals, the method further comprising:

applying a phase rotation to the weighted imaginary-valued (Q) spread signals on the Q branch.

18. The method of 12, wherein the applying includes scrambling the complex-valued signal with a complex-valued scrambling code so that a first scrambling chip of the complex-valued scrambling code corresponds to a beginning of a radio frame containing the complex-valued signal.

19. The method of claim 12, wherein

the plurality of physical channels include a first control channel configured to support high speed downlink packet access (HSPDA) services and a second control channel configured to support enhanced uplink (EU) services, and

the at least one data channel is configured to support enhanced uplink (EU) services.

20. The method of claim 19, wherein the first and second control channels are mapped to the same branch.

21. A method for uplink spreading a plurality of physical channels for uplink transmission, comprising:

subjecting information on the plurality of physical channels to a channelization operation to generate spread signals, where information on at least one of the physical channels is serial-to-parallel converted and mapped to one or both of a first and second branch before being subject to the channelization operation;

summing the spread signals to generate a complex-valued signal; and

scrambling the complex valued signal to generate a code-multiplexed signal for uplink transmission.